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CORNING, NY 14831

EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* DANA CRAIG BOOKBINDER,  
GARY S. CALABRESE, YUNFENG GU, and JIANGUO WANG

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Appeal 2015-007339  
Application 13/115,349  
Technology Center 1700

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Before GEORGE C. BEST, DONNA M. PRAISS, and  
DEBRA L. DENNETT, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION ON APPEAL

The Examiner finally rejected claims 1–20 of Application 13/115,349 under 35 U.S.C. § 103(a) as obvious. Final Act. (July 10, 2014).

Appellants<sup>1</sup> seek reversal of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we AFFIRM. Because our affirmance relies upon evidence not considered by the Examiner, it constitutes a NEW GROUND OF REJECTION.

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<sup>1</sup> Corning Incorporated is identified as the real party in interest. Appeal Br. 3.

## BACKGROUND

The '349 Application describes methods for the production of porous inorganic membranes and coatings having uniform pore size distribution. Spec. ¶ 2. Such membranes are used for industrial liquid filtration and have been investigated for gas-particulate separation, gas separation, and catalytic reactions. *Id.* ¶ 3.

Claim 1 is representative of the '349 Application's claims and is reproduced below from the Claims Appendix:

1. A method for making a single modal porous inorganic filtration membrane comprising the steps of:
  - mixing an inorganic material, organic polymer particles and a solvent to form a slurry, the particles being multi-lobed;
  - distributing the slurry onto a surface;
  - drying the slurry to remove the solvent; and
  - firing the dried slurry to produce the porous inorganic membrane.

Appeal Br. 23.

## REJECTION

On appeal, the Examiner maintains the following rejection:

Claims 1–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Gu,<sup>2</sup> Adilstam '725,<sup>3</sup> and Soria.<sup>4</sup> Final Act. 3.

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<sup>2</sup> US 2008/0299377 A1, published December 4, 2008.

<sup>3</sup> US 2008/0213725 A1, published September 4, 2008.

<sup>4</sup> US 6,573,208 B1, issued June 3, 2003.

## DISCUSSION

Appellants present separate arguments for the patentability of claims 1, 11, and 14. *See, e.g.*, Appeal Br. 7. Appellants argue that claims 2–10, 12, 13, and 15–20 are allowable based on their dependence from an allowable base claim. *Id.* at 21–22. We, therefore, will address claims 1, 11, and 14 in turn. Claims 2–10, 12, 13, and 15–20 will stand or fall with the independent claim from which they ultimately depend. 37 C.F.R. § 41.37(c)(1)(iv).

**Claim 1.** Appellants argue that the rejection of claim 1 should be reversed because (1) the Examiner failed to establish a *prima facie* case of obviousness because the combination of Gu, Adilstam '725, and Soria does not describe or suggest each limitation of claim 1, Appeal Br. 8–13; (2) the Examiner failed to provide a persuasive reason to combine Gu, Adilstam '725, and Soria, *id.* at 13–18; and (3) the claimed process provides unexpected and superior results relative to the prior art, *id.* at 18–20. We address these arguments *seriatim*.

*First*, Appellants argue that the Examiner did not establish a *prima facie* case of obviousness with respect to claim 1. *Id.* at 8–13. In particular, Appellants argue that the Examiner erred by finding that Adilstam '725 describes or suggests that the pore forming particles are multi-lobed. *Id.* at 9–10.

The Examiner responds

that the cited prior art does not explicitly teach pore forming particles having a multi-lobed shape. Rather, Adilstam ['725] states that the pore forming particles are allocated a size and/or shape determining the pore formation [0010]. This would have indicated to one having ordinary skill in the art the importance of the shape of the pore former as it pertains to the pore shape in the resulting article. In this way, the shape of the pore forming

particles is a result effective variable having an effect on the pore shape in the resulting article. Such result effective variables are *prima facie* obvious by routine optimization.

Answer 2; *see also id.* at 3–4. The relevant portion of Adilstam ’725’s ¶ 10 reads: “In one embodiment of the inventive concept, *the particles are allocated a size and/or shape determining the pore formation*, and the particles thus forming as pore formers are chosen to be or are insoluble in the liquid included in the dispersion.” Adilstam ’725 ¶ 10 (emphasis added).

We regard the portion of Adilstam ’725 cited by the Examiner to be ambiguous. We, therefore, obtained a copy of Adilstam ’279,<sup>5</sup> which is the original, Swedish-language PCT filing. The portion of Adilstam ’279 which corresponds to Adilstam ’725’s ¶ 10 reads: “In one embodiment of the inventive idea, the particles are assigned a size and/or form that determines the pore formation, and the particles that function in this way as pore-formers are chosen to be or are insoluble in the dispersion comprising the liquid.” Adilstam ’279 at 7. Furthermore, Adilstam ’279 also states that “[t]he different pore-forms produce different porosities, as shown in Figures 3–8a, which illustrate[] porous surfaces on the ceramic implant.” *Id.* at 13 (corresponding to Adilstam ’725 ¶ 21). Claim 8 of Adilstam ’279 also describes the effect of using pore-formers with different sizes and shapes:

8. Method according to patent claim 1, characterized in that different pore-formers with regard to pore-number, pore-size, and pore-distribution, are used . . . to achieve the variation or variations in the layer’s pore structure.

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<sup>5</sup> SE 2004-001279, filed September 24, 2003. We cite an English-language translation of this document. Copies of both Adilstam ’279 and the translation thereof have been entered into the record of the ’349 Application and accompany this opinion.

Adilstam '279 at 23.

In view of the foregoing, we cannot say that the Examiner committed reversible error by finding that Adilstam '725 would have suggested to a person having ordinary skill in the art at the time of the invention that the shape of the pore-former was a result-effective variable subject to optimization and that such a skilled artisan would have arrived at the use of a multi-lobed pore-former through routine optimization.

*Second*, Appellants argue that the Examiner has not identified an adequate reason to combine Gu, Adilstam '725, and Soria. Appeal Br. 13–18. In particular, Appellants argue that a person having ordinary skill in the art would not have combined Soria with Gu and Adilstam '725 because Soria describes the use of a paste comprising ceramic particles while Gu and Adilstam '725 describe the use of slurries. *Id.* at 14–15. Appellants further argue that Soria teaches away from the use of slurries such as those described in Gu and Adilstam '725. *Id.* at 16–18. Based upon these arguments, Appellants assert that “a person having ordinary skill in the art would have been deterred and discouraged from combining the relied on features of Gu and/or Adilstam with Soria’s method for making a homogeneous bulky porous ceramic material or membrane (col. 3, lines. 16–26).” Appeal Br. 17.

Appellants’ argument is not persuasive because it does not address the rejection actually made by the Examiner. In rejecting claim 1, the Examiner concluded that

it would have been obvious to one having ordinary skill in the art at the time the invention was made to practice the method of Gu and Adilstam ['725] and form a single modal membrane because *Soria establishes that there is a reasonable expectation of success using the same components of Gu and that a single*

*modal pore distribution is desirable in the context of a ceramic filter.*

Final Act. 4 (emphasis added). In other words, the Examiner is relying upon Gu's methodology—not Soria's—to make the claimed filtration membrane. Because Gu's publication date is several years after Soria's, a person of ordinary skill in the art reasonably could assume that Gu's method does not suffer from the problems identified in Soria.

*Third*, Appellants argue that the '349 Application's process provides unexpected results. Appeal Br. 18–20. We agree with the Examiner that Appellants' evidence is not commensurate in scope with claim 1. *See* Answer 6.

For the reasons set forth above, we affirm the Examiner's rejection of claim 1 as unpatentable over the combination of Gu, Adilstam '725, and Soria, as evidenced by Adilstam '279.

**Claim 11.** Appellants argue that claim 11 is separately patentable because “Gu does not teach the claimed porosity in monomodal distribution and Soria relied upon for single modal distribution cannot achieve the claimed porosity range.” Appeal Br. 21.

This argument is not persuasive because Appellants are attacking the references individually. The rejection, however, is over the combination of references. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). We, therefore, affirm the rejection of claim 11.

**Claim 14.** Appellants argue that the rejection of independent claim 14 should be reversed for the same or similar reasons as the rejection of claim 1. *See* Appeal Br. 20–21.

As discussed above, we have affirmed the Examiner's rejection of claim 1. Thus, we also affirm the rejection of claim 14.

## CONCLUSION

For the reasons set forth above, we affirm the rejection of claims 1–20 of the '349 Application. Because our affirmance relies upon evidence not considered by the Examiner, we designate it as containing a new ground of rejection.

This Decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b), which provides that “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
- (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED; NEW GROUND OF REJECTION  
PURSUANT TO 37 C.F.R. § 41.50(b)